

COVID-19 Results Briefing

The African Region

January 13, 2022

This document contains summary information on the latest projections from the IHME model on COVID-19 in the African Region. The model was run on January 12, 2022, with data through January 10, 2022.

The Omicron wave sweeping the African region has peaked in many countries, including much of Southern and Eastern Africa, while some countries in West Africa have yet to reach their peak. The Omicron surge is creating unprecedented levels of transmission, with daily infections estimated at 9.5 million per day on average, ten times that of previous peaks. The massive surge in infections, however, is not leading to a 10x increase in deaths because Omicron is 90-99% less severe. Lower severity is due to three factors: 1) the fraction of people with asymptomatic infection is up from 40% to 80-90%; 2) among those who have symptomatic infection, the hospitalization rate is down 40-60%; and 3) among those hospitalized, the fraction requiring intubation and/or dying is down 80-90%. The intensity of transmission and the high fraction of asymptomatic cases mean that strategies that worked in the past to reduce transmission such as mask use, social distancing, testing, and quarantine are unlikely to have a significant impact on the Omicron wave. Rapid peaks and subsequent declines already seen in countries in multiple regions validate the model findings that the peak of transmission will occur in nearly all countries within the next 2-3 weeks.

Given the dramatically different situation for Omicron as compared to previous waves of the pandemic, we suggest that countries evaluate the situation in three dimensions. First, hospitals will be under considerable stress because of increased admissions and staff absences due to staff testing positive and having to quarantine. The hospital surge we estimate includes admissions that are incidental, namely individuals coming to hospital with other problems and testing positive for COVID-19. Nevertheless, there will be pressure on hospitals from COVID-19 patients and staff shortages. The staff shortages can be ameliorated by testing only symptomatic individuals and reducing quarantine for those who test positive. Similar considerations should be taken to keep schools and essential businesses open in the next weeks, namely stopping testing of asymptomatic individuals. Second, because Omicron transmission is so intense, efforts to impose new mask mandates or other social distancing mandates should be avoided, as they are unlikely to have any impact. Individuals who are vulnerable should be encouraged to protect themselves through high-quality mask use and social distancing. But this effort is unlikely to influence the population trajectory of the epidemic. Third, to bolster health system capacity to manage future waves of COVID-19 as well as other infectious disease epidemics, surveillance efforts should be maintained after the Omicron wave, vaccination including boosters should be encouraged, antiviral access enhanced or obtained, and behavioral measures such as mask use and social distancing employed if and when the next wave comes.

Current situation

- Estimated daily infections in the last week decreased to 9,503,900 per day on average compared to 9,775,700 the week before (Figure 1.1). Daily hospital census in the last week (through January 10) increased to 77,700 per day on average compared to 75,700 the week before.
- Daily reported cases in the last week decreased to 34,800 per day on average compared to 39,700 the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week increased to 230 per day on average compared to 190 the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week increased to 2,000 per day on average compared to 1,500 the week before (Figure 3.1). **This makes COVID-19 the number 2 cause of death in African Region this week** (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 8.5 times larger than the reported number of deaths.
- No locations had daily reported COVID-19 death rates greater than 4 per million (Figure 4.1).
- The daily rate of reported deaths due to COVID-19 is greater than 4 per million in nine countries (Figure 4.2).
- We estimate that 65% of people in the African Region have been infected at least once as of January 10 (Figure 6.1). Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in 19 countries in the region (Figure 7.1).
- The infection-detection rate in African Region was close to 0% on January 10 (Figure 8.1).
- Based on the GISAID and various national databases, combined with our variant spread model, we estimate the current prevalence of variants of concern (Figure 9.1-Figure 9.5). We estimate that the Alpha variant is circulating in one country, that the Beta variant is circulating in 0 countries, that the Delta variant is circulating in 44 countries, that the Gamma variant is circulating in one country, and that the Omicron variant is circulating in 47 countries.

Trends in drivers of transmission

- Mobility last week was 29% higher than the pre-COVID-19 baseline (Figure 11.1). Mobility was lower than 30% of baseline in no locations.
- As of January 10, in the COVID-19 Trends and Impact Survey, 42% of people self-report that they always wore a mask when leaving their home compared to 43% last week (Figure 13.1).
- There were 18 diagnostic tests per 100,000 people on January 10 (Figure 15.1).

- As of January 10, two countries have reached 70% or more of the population who have received at least one vaccine dose, and one country has reached 70% or more of the population who are fully vaccinated (Figure 17.1). 12% of people in the African Region have received at least one vaccine dose and 8% are fully vaccinated.
- In the African Region, 58.8% of the population that is 12 years and older say they would accept or would probably accept a vaccine for COVID-19. Note that vaccine acceptance is calculated using survey data from the 18+ population. This is up by 0.4 percentage points from last week. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 31% in Namibia to 86% in Cabo Verde (Figure 19.1).
- In our current reference scenario, we expect that 201.8 million people will be vaccinated with at least one dose by May 1 (Figure 20.1). We expect that 13% of the population will be fully vaccinated by May 1.

Projections

Infections

- Daily estimated infections in the **reference scenario**, which represents what we think is most likely to happen, will decline to 355,430 on May 1, 2022 (Figure 21.1).
- Daily estimated infections in the **80% mask coverage scenario** will decline to 555,820 on May 1, 2022 (Figure 21.1).
- Daily estimated infections in the **third dose scenario** will decline to 314,830 on May 1, 2022 (Figure 21.1).
- Daily estimated infections in the **reduced vaccine hesitancy scenario** will decline to 319,430 on May 1, 2022 (Figure 21.1).

Cases

- Daily cases in the **reference scenario** will decline to 3,850 on May 1, 2022 (Figure 21.2).
- Daily cases in the **80% mask coverage scenario** will decline to 4,740 on May 1, 2022 (Figure 21.2).
- Daily cases in the **third dose scenario** will decline to 3,050 on May 1, 2022 (Figure 21.2).
- Daily cases in the **reduced vaccine hesitancy scenario** will decline to 3,210 on May 1, 2022 (Figure 21.2).

Hospitalizations

- Daily hospital census in the **reference scenario** will decline to 4,860 on May 1, 2022 (Figure 21.3).
- Daily hospital census in the **80% mask coverage scenario** will decline to 7,140 on May 1, 2022 (Figure 21.3).

- Daily hospital census in the **third dose scenario** will decline to 4,360 on May 1, 2022 (Figure 21.3).
- Daily hospital census in the **reduced vaccine hesitancy scenario** will decline to 4,370 on May 1, 2022 (Figure 21.3).

Deaths

- In our **reference scenario**, our model projects 163,000 cumulative reported deaths due to COVID-19 on May 1. This represents 7,000 additional deaths from January 10 to May 1. Daily reported COVID-19 deaths in the **reference scenario** will decline to 10 on May 1, 2022 (Figure 21.4).
- Under our **reference scenario**, our model projects 1,104,000 cumulative total deaths due to COVID-19 on May 1. This represents 68,000 additional deaths from January 10 to May 1 (Figure 24.2).
- In our **80% mask coverage scenario**, our model projects 162,000 cumulative reported deaths due to COVID-19 on May 1. This represents 6,000 additional deaths from January 10 to May 1. Daily reported COVID-19 deaths in the **80% mask coverage scenario** will decline to 10 on May 1, 2022 (Figure 21.4).
- In our **third dose scenario**, our model projects 163,000 cumulative reported deaths due to COVID-19 on May 1. This represents 6,000 additional deaths from January 10 to May 1. Daily reported COVID-19 deaths in the **third dose scenario** will decline to 10 on May 1, 2022 (Figure 21.4).
- In our **reduced vaccine hesitancy scenario**, our model projects 163,000 cumulative reported deaths due to COVID-19 on May 1. This represents 6,000 additional deaths from January 10 to May 1. Daily reported COVID-19 deaths in the **reduced vaccine hesitancy scenario** will decline to 10 on May 1, 2022 (Figure 21.4).
- Figure 22.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.
- At some point from January through May 1, 29 countries will have high or extreme stress on hospital beds (Figure 23.1). At some point from January through May 1, 40 countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 24.1).

Model updates

In this week's update, we have modified the model to allow the incubation time to vary by variant. For Omicron, we assume it is distributed between 1 and 4 days, skewed toward 1 day. For all other variants, we assume it is 3 to 5 days, skewed toward 3 days.

Figure 1.1. Daily COVID-19 hospital census and estimated infections

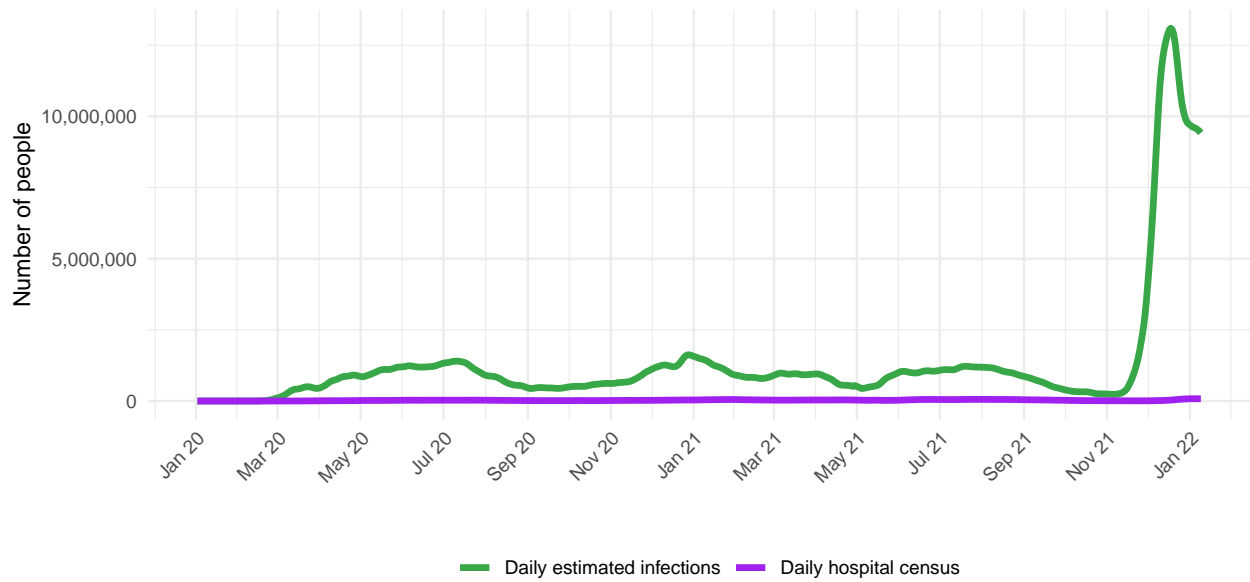


Figure 2.1. Reported daily COVID-19 cases, moving average

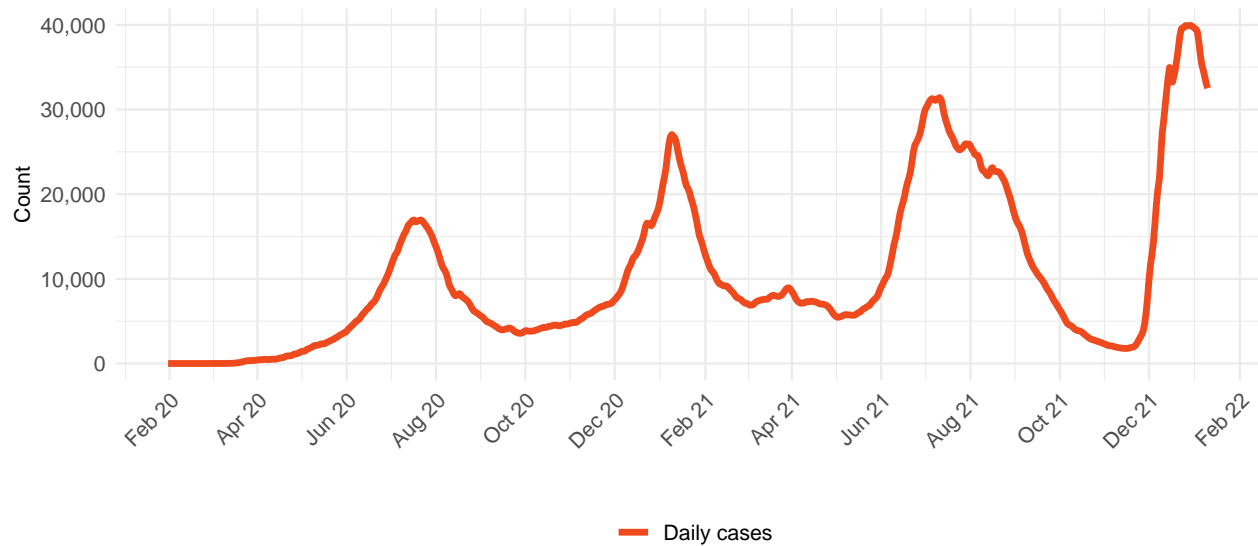
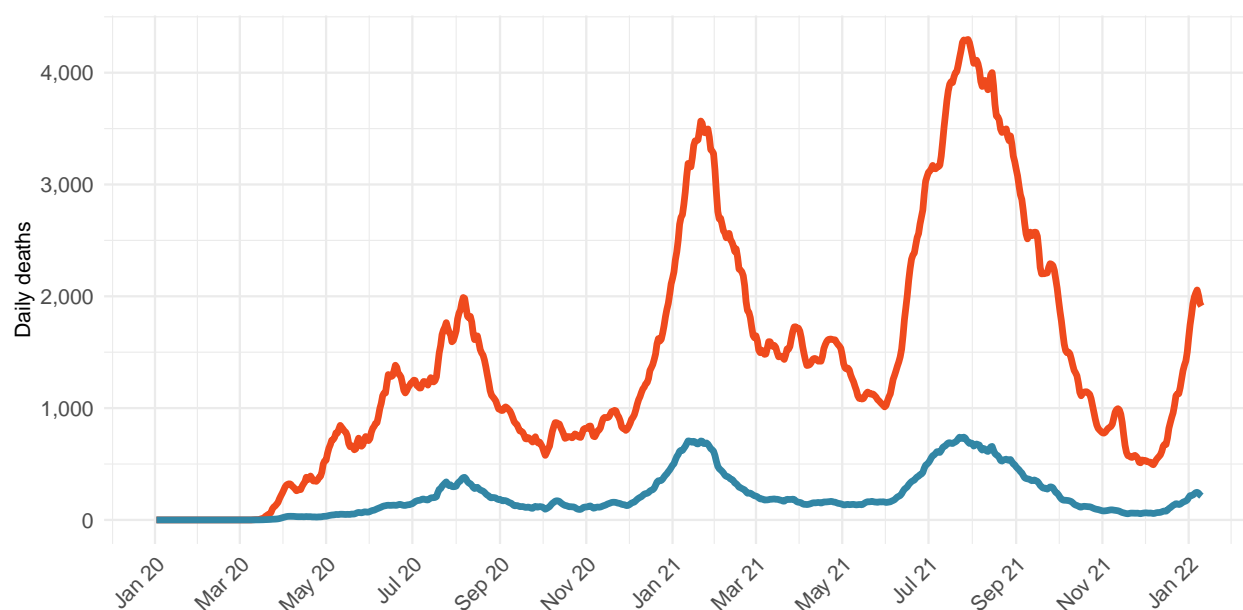


Table 1. Ranking of total deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
Neonatal disorders	14,422	1
COVID-19	13,864	2
Lower respiratory infections	12,732	3
HIV/AIDS	12,224	4
Malaria	11,351	5
Diarrheal diseases	11,088	6
Ischemic heart disease	8,306	7
Stroke	8,063	8
Tuberculosis	7,097	9
Congenital birth defects	3,721	10

Figure 3.1. Smoothed trend estimate of reported daily COVID-19 deaths (blue) and total daily deaths due to COVID-19 (orange)



Daily COVID-19 death rate per 1 million on January 10, 2022

Figure 4.1 Daily reported COVID-19 death rate per 1 million

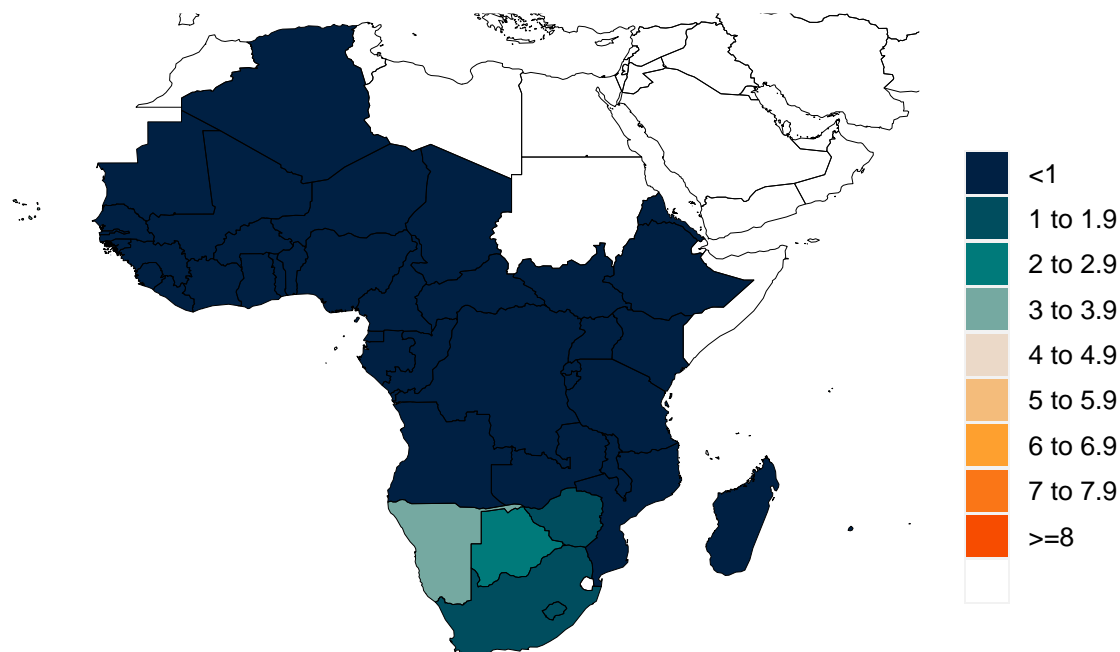
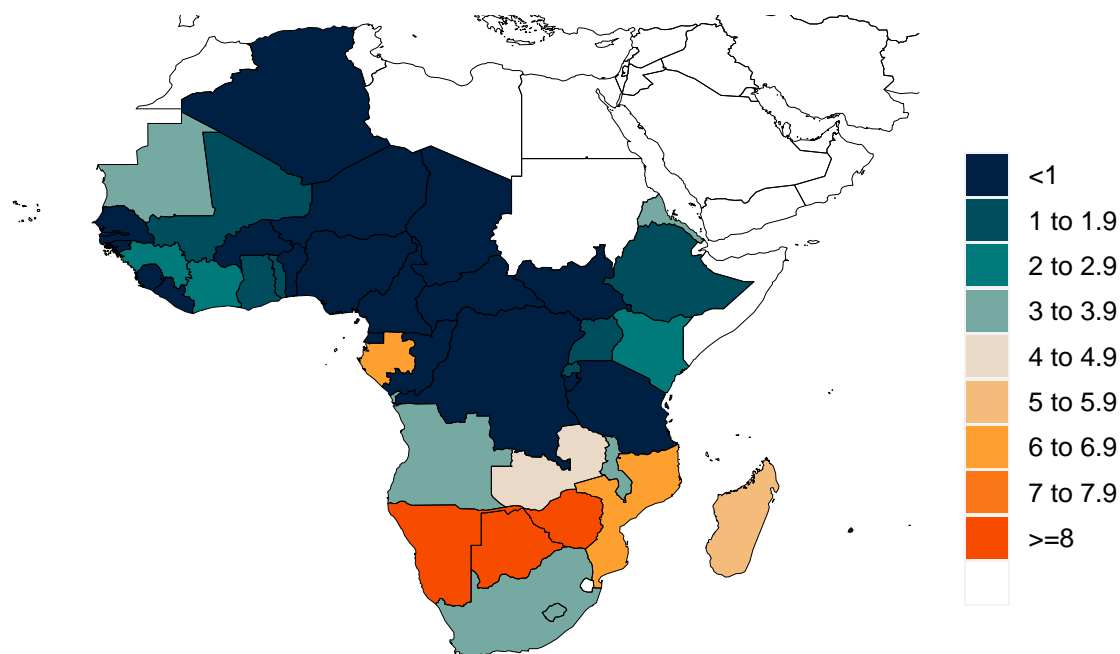


Figure 4.2 Daily total COVID-19 death rate per 1 million



Cumulative COVID-19 deaths per 100,000 on January 10, 2022

Figure 5.1 Reported cumulative COVID-19 deaths per 100,000

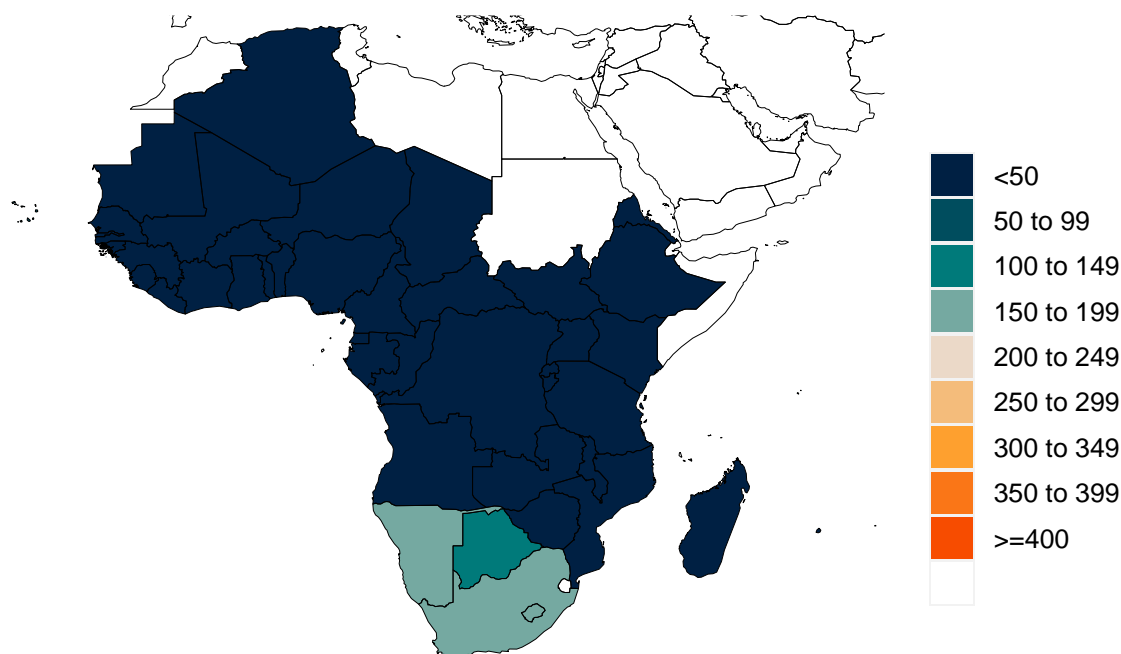


Figure 5.2 Total cumulative COVID-19 deaths per 100,000

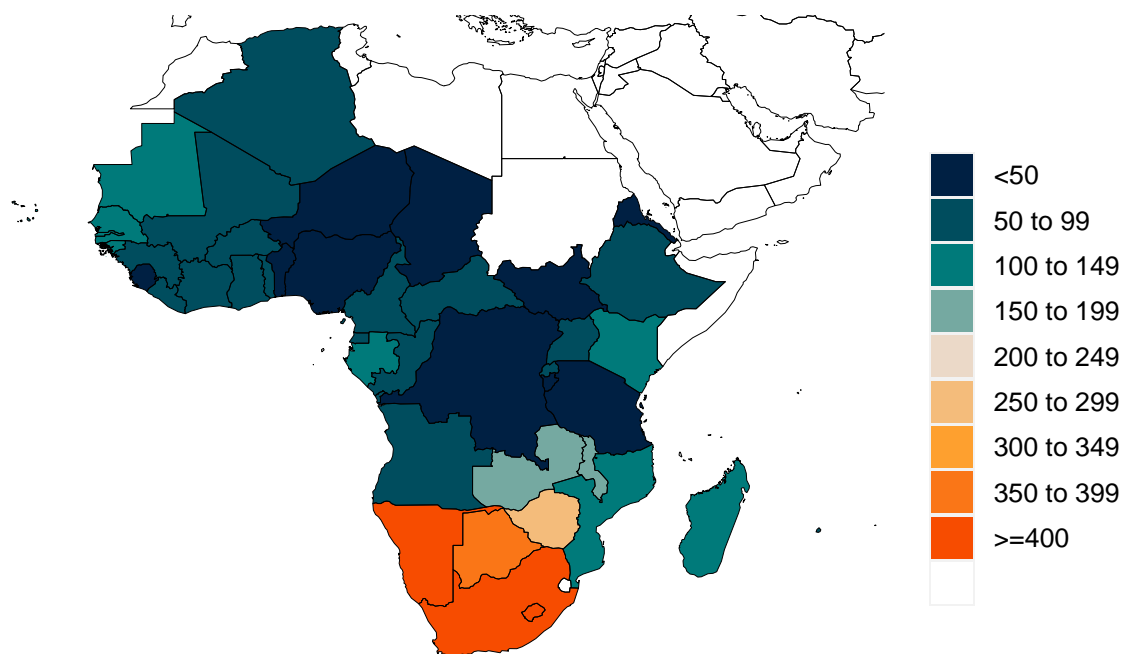


Figure 6.1. Estimated percent of the population infected with COVID-19 on January 10, 2022

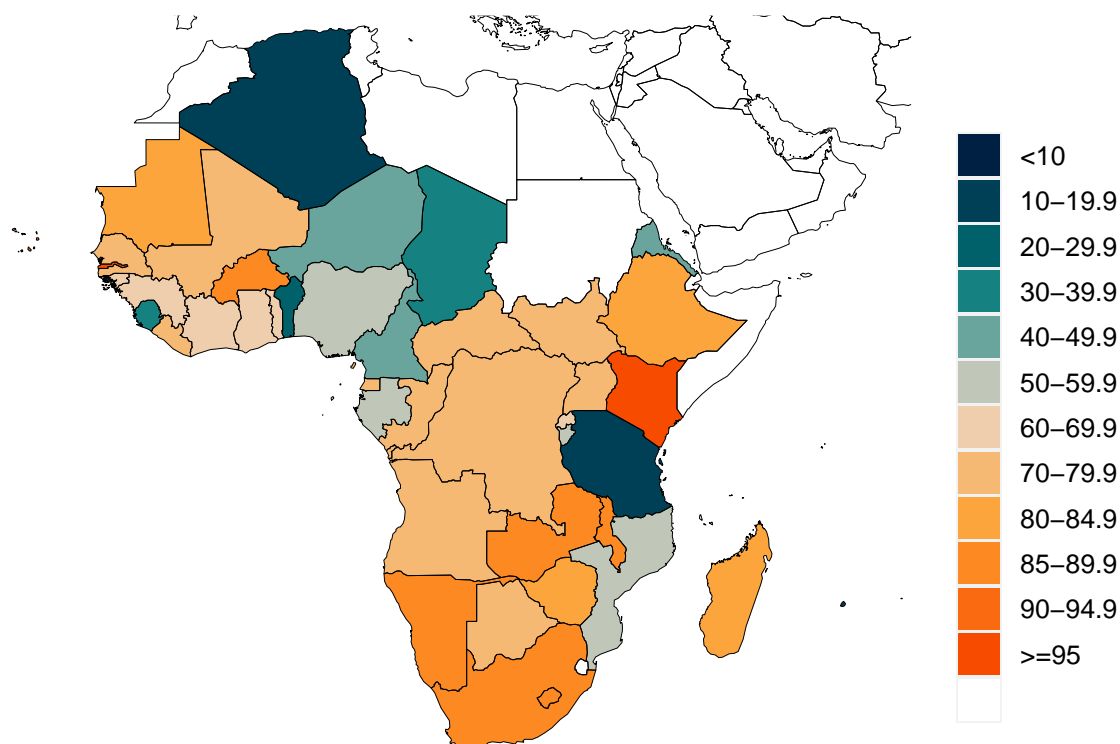


Figure 7.1. Mean effective R on December 30, 2021. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11–13 days prior, so estimates of effective R can only be made for the recent past.

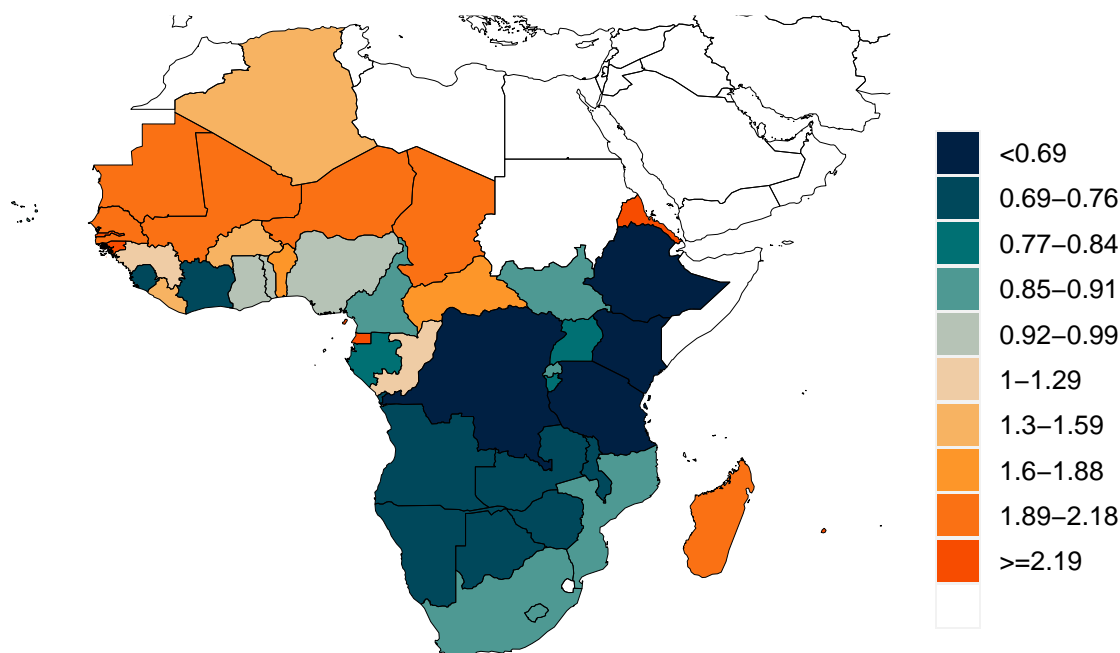
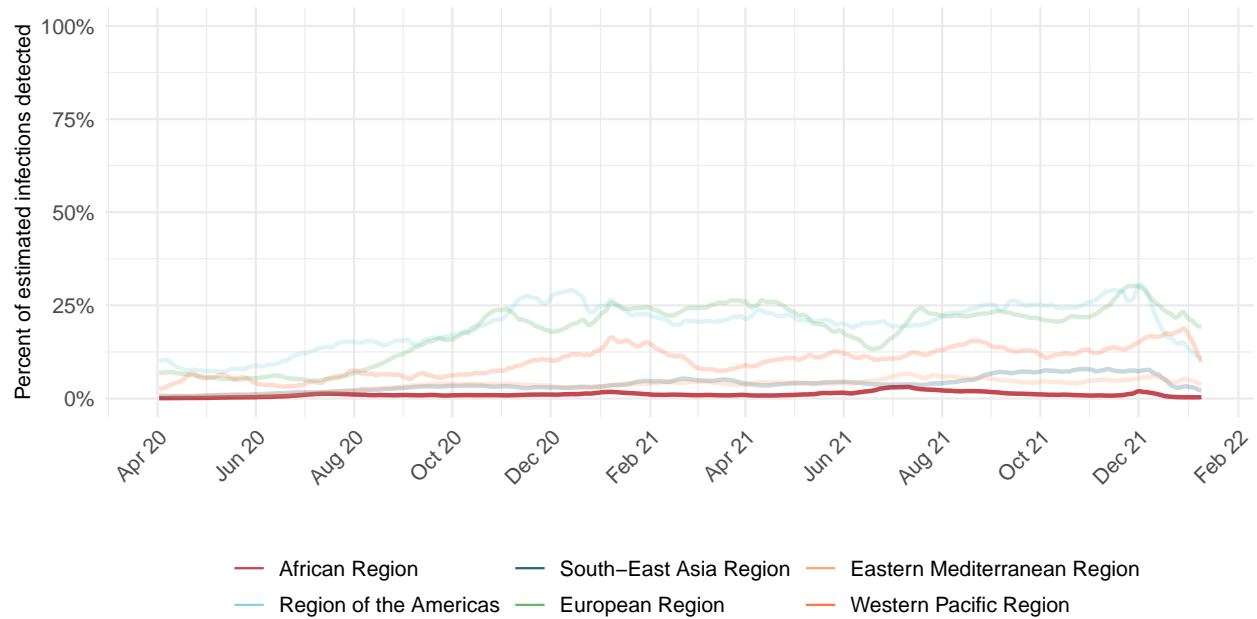


Figure 8.1. Percent of estimated COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed 100% at particular points in time.



Estimated percent of circulating SARS-CoV-2 for primary variant families on January 10, 2022

Figure 9.1 Estimated percent of new infections that are Alpha variant



Figure 9.2 Estimated percent of new infections that are Beta variant



Figure 9.3 Estimated percent of new infections that are Delta variant

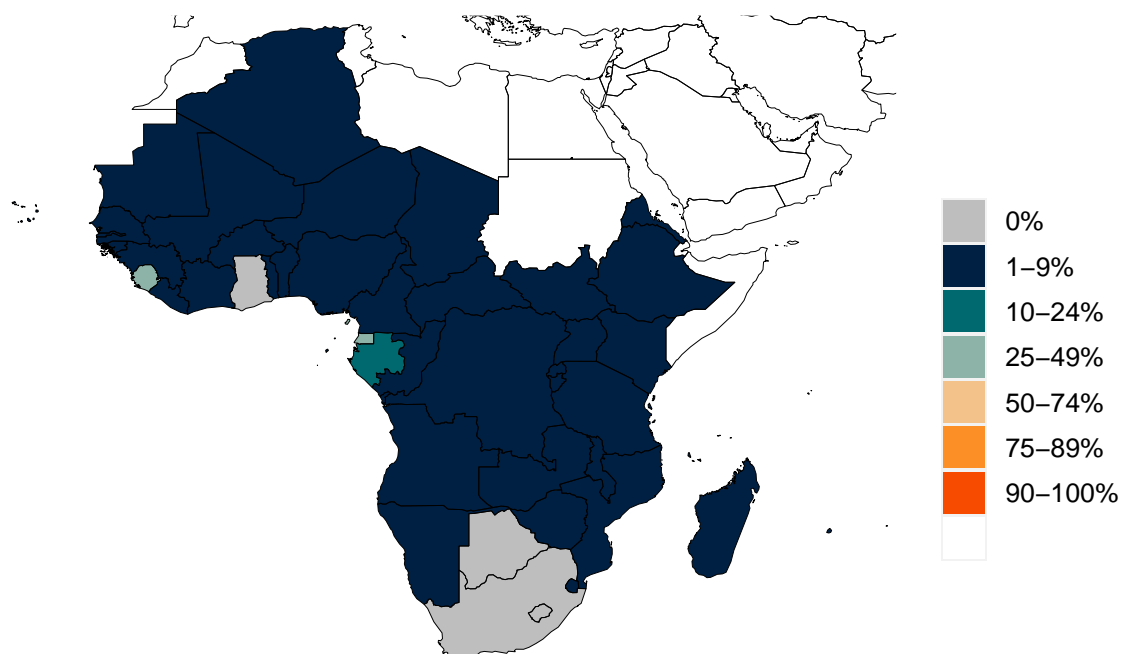


Figure 9.4 Estimated percent of new infections that are Gamma variant



Figure 9.5 Estimated percent of new infections that are Omicron variant

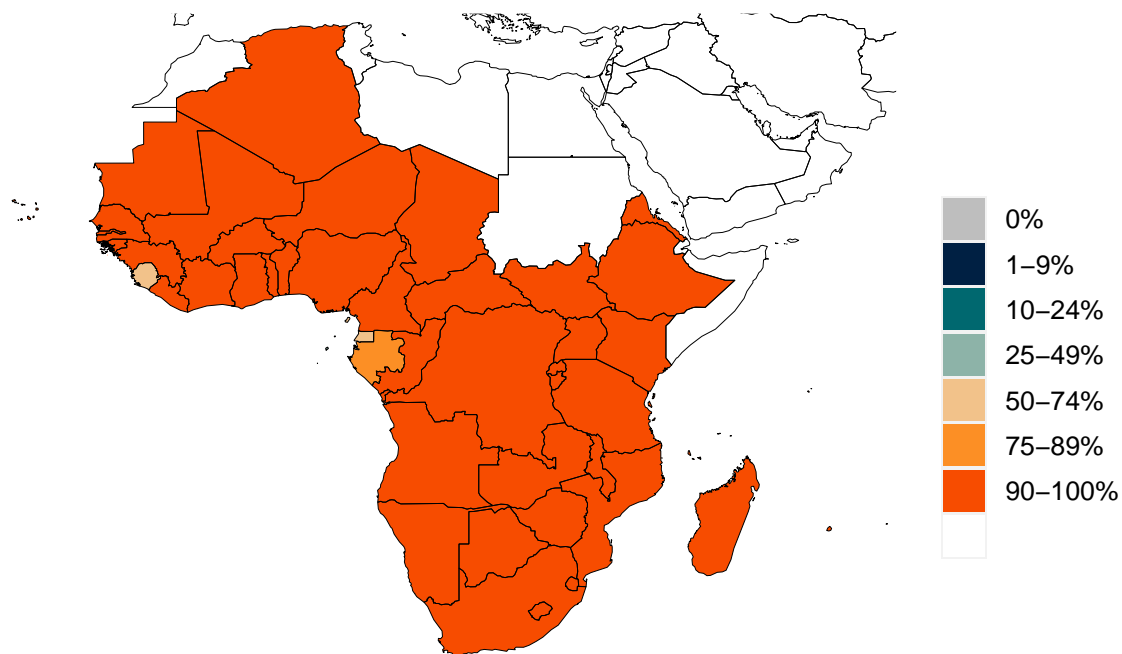
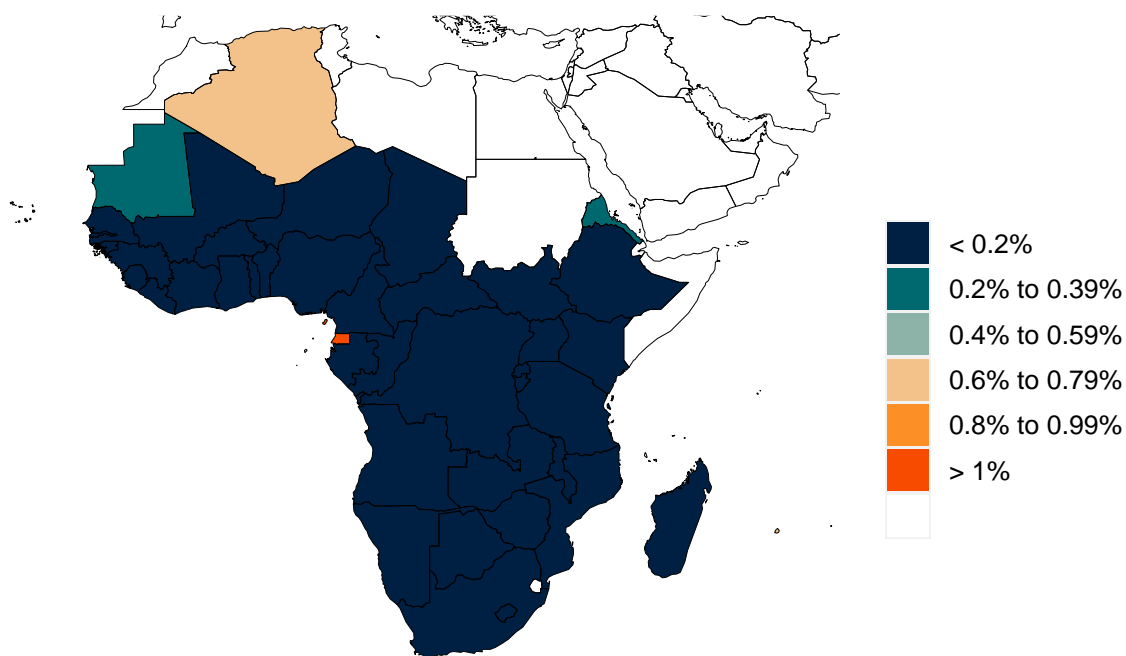


Figure 10.1. Infection-fatality rate on January 10, 2022. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.



Critical drivers

Table 2. Current mandate implementation

	Primary school closure	Secondary school closure	Higher school closure	Entry restrictions for some non-residents	Entry restrictions for all non-residents	Individual movements restricted	Curfew for businesses	Individual curfew	Gathering limit: 6 indoor, 10 outdoor	Gathering limit: 10 indoor, 25 outdoor	Gathering limit: 25 indoor, 50 outdoor	Gathering limit: 50 indoor, 100 outdoor	Gathering limit: 100 indoor, 250 outdoor	Restaurants closed	Bars closed	Restaurants / bars closed	Restaurants / bars curbside only	Gyms, pools, other leisure closed	Non-essential retail closed	Non-essential retail curbside only	Non-essential workplaces closed	Stay home order	Stay home fine	Mask mandate	Mask mandate fine
Algeria																									
Angola																									
Benin																									
Botswana																									
Burkina Faso																									
Burundi																									
Cabo Verde																									
Cameroon																									
Central African Republic																									
Chad																									
Comoros																									
Congo																									
Côte d'Ivoire																									
Democratic Republic of the Congo																									
Equatorial Guinea																									
Eritrea																									
Eswatini																									
Ethiopia																									
Gabon																									
Gambia																									
Ghana																									
Guinea																									
Guinea-Bissau																									
Kenya																									
Lesotho																									
Liberia																									
Madagascar																									
Malawi																									
Mali																									
Mauritania																									
Mauritius																									
Mozambique																									
Namibia																									
Niger																									
Nigeria																									
Rwanda																									
Sao Tome and Principe																									
Senegal																									
Seychelles																									
Sierra Leone																									
South Africa																									
South Sudan																									
Togo																									
Uganda																									
United Republic of Tanzania																									
Zambia																									
Zimbabwe																									

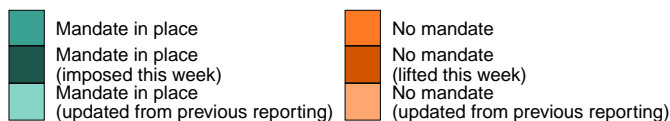


Figure 11.1. Trend in mobility as measured through smartphone app use, compared to January 2020 baseline

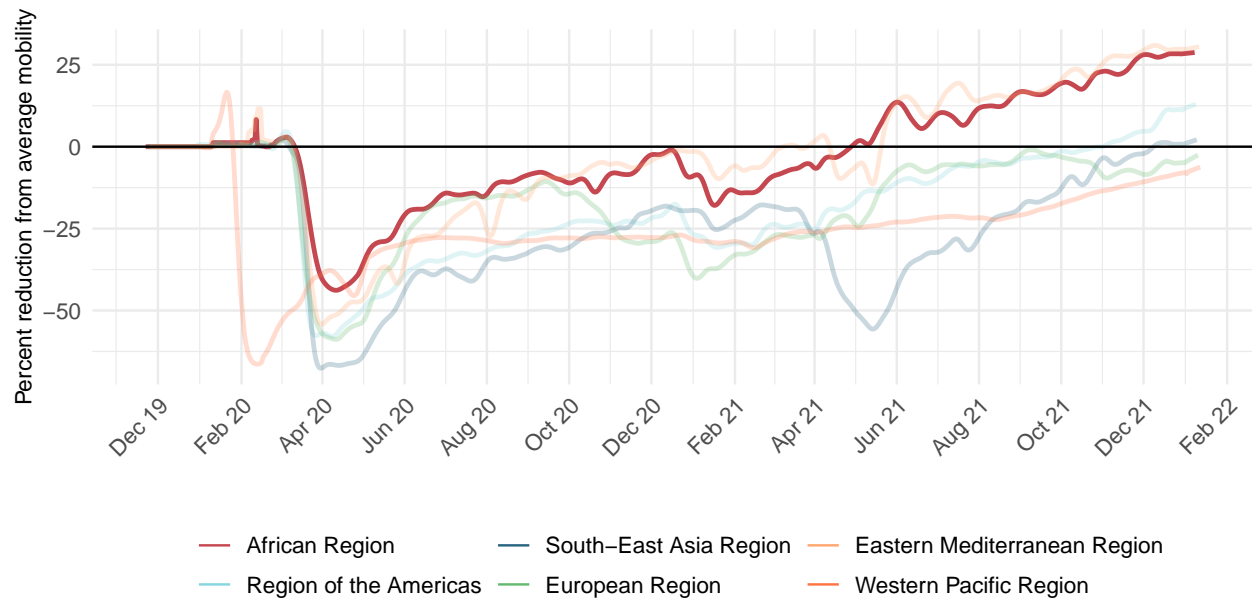


Figure 12.1. Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on January 10, 2022

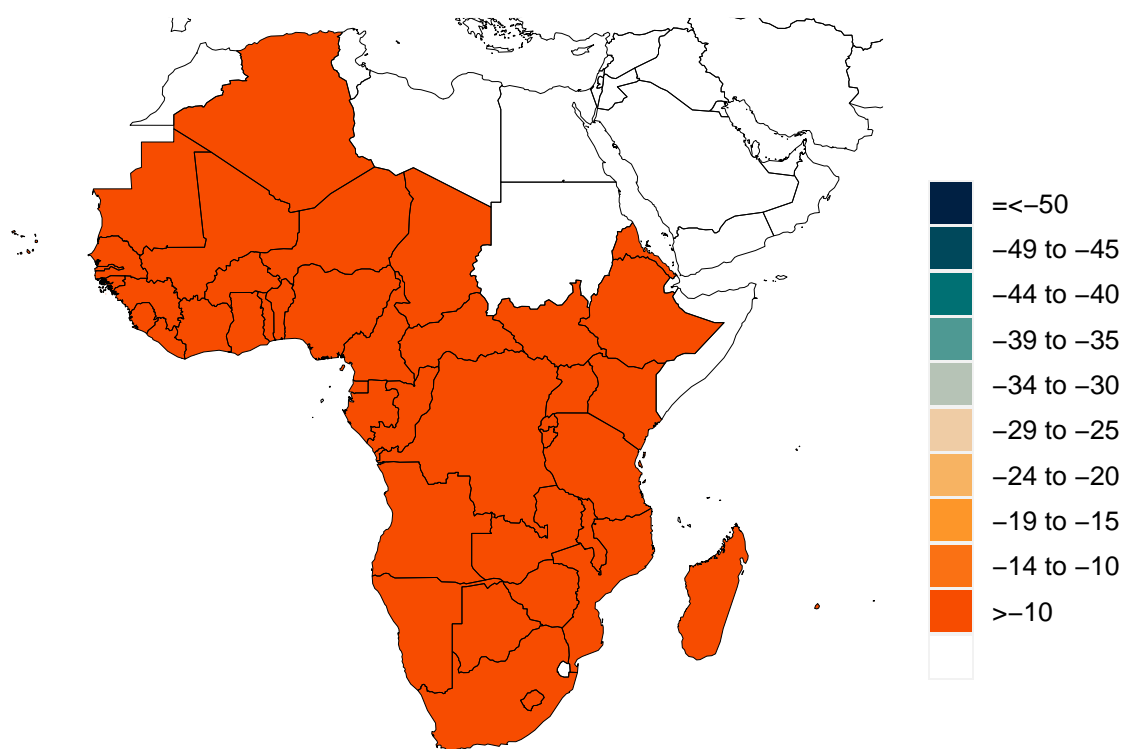


Figure 13.1. Trend in the proportion of the population reporting always wearing a mask when leaving home

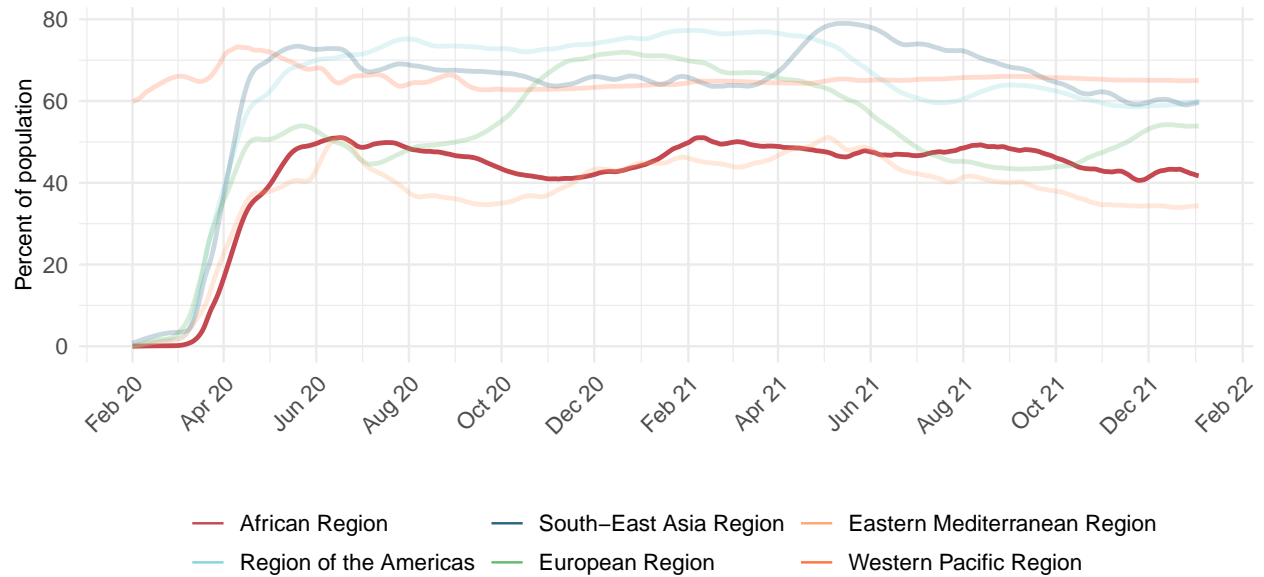


Figure 14.1. Proportion of the population reporting always wearing a mask when leaving home on January 10, 2022

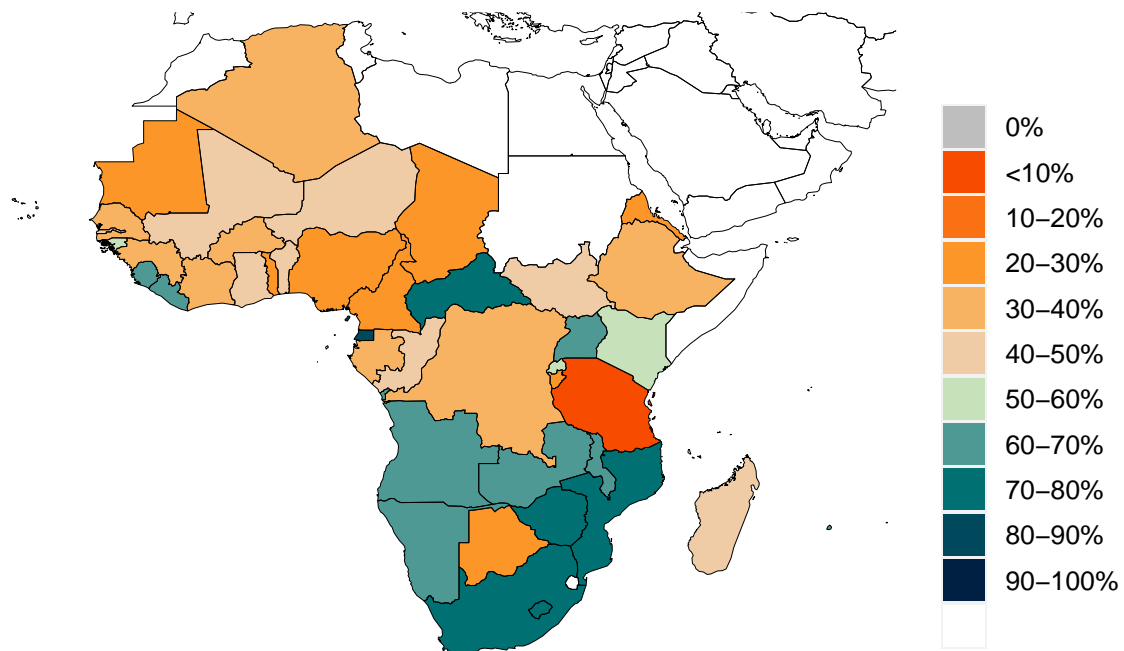


Figure 15.1. Trend in COVID-19 diagnostic tests per 100,000 people

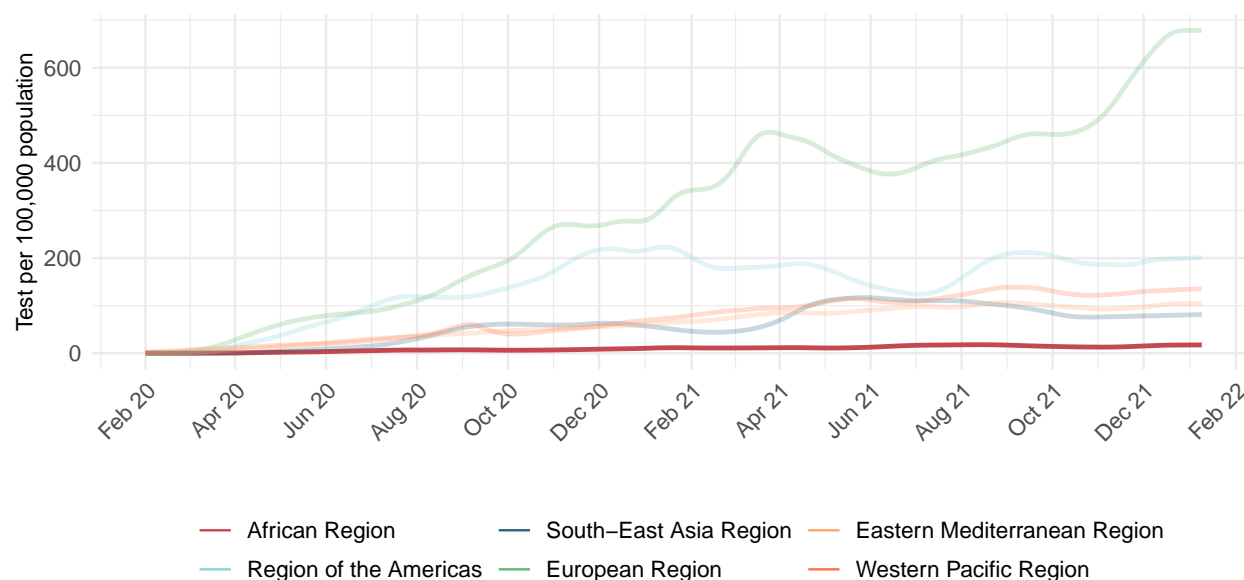


Figure 16.1. COVID-19 diagnostic tests per 100,000 people on January 10, 2022

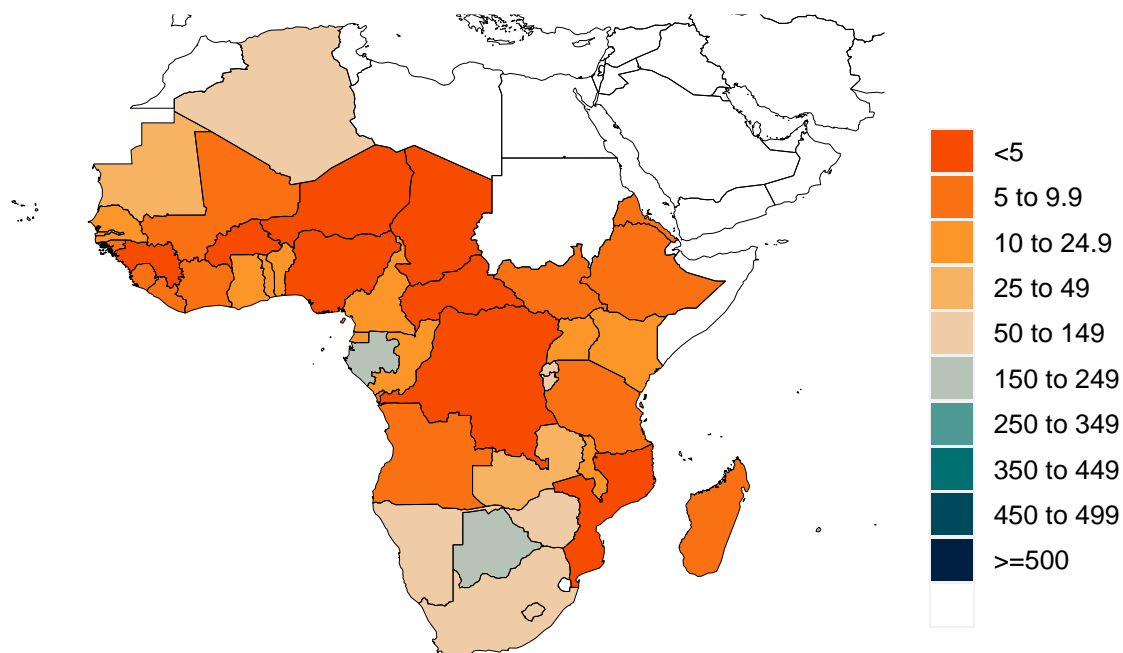


Table 3. Estimates of vaccine effectiveness for specific vaccines used in the model at preventing severe disease and infection. We use data from clinical trials directly, where available, and make estimates otherwise. More information can be found on our [website](#).

Vaccine	Effectiveness at preventing											
	Ancestral		Alpha		Beta		Gamma		Delta		Omicron	
	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection
AstraZeneca	94%	63%	94%	63%	94%	69%	94%	69%	94%	69%	71%	36%
CanSino	66%	62%	66%	62%	64%	61%	64%	61%	64%	61%	48%	32%
CoronaVac	50%	47%	50%	47%	49%	46%	49%	46%	49%	46%	37%	24%
Covaxin	78%	73%	78%	73%	76%	72%	76%	72%	76%	72%	57%	38%
Johnson & Johnson	86%	72%	86%	72%	76%	64%	76%	64%	76%	64%	57%	33%
Moderna	97%	92%	97%	92%	97%	91%	97%	91%	97%	91%	73%	48%
Novavax	89%	83%	89%	83%	86%	82%	86%	82%	86%	82%	65%	43%
Pfizer/BioNTech	95%	86%	95%	86%	95%	84%	95%	84%	95%	84%	72%	44%
Sinopharm	73%	68%	73%	68%	71%	67%	71%	67%	71%	67%	53%	35%
Sputnik-V	92%	86%	92%	86%	89%	85%	89%	85%	89%	85%	67%	44%
Other vaccines	75%	70%	75%	70%	73%	69%	73%	69%	73%	69%	55%	36%
Other vaccines (mRNA)	91%	86%	91%	86%	88%	85%	88%	85%	88%	85%	67%	45%

Percent of the population having received at least one dose (17.1) and fully vaccinated against SARS-CoV-2 (17.2) by January 10, 2022

Figure 17.1 Percent of the population having received one dose of a COVID-19 vaccine

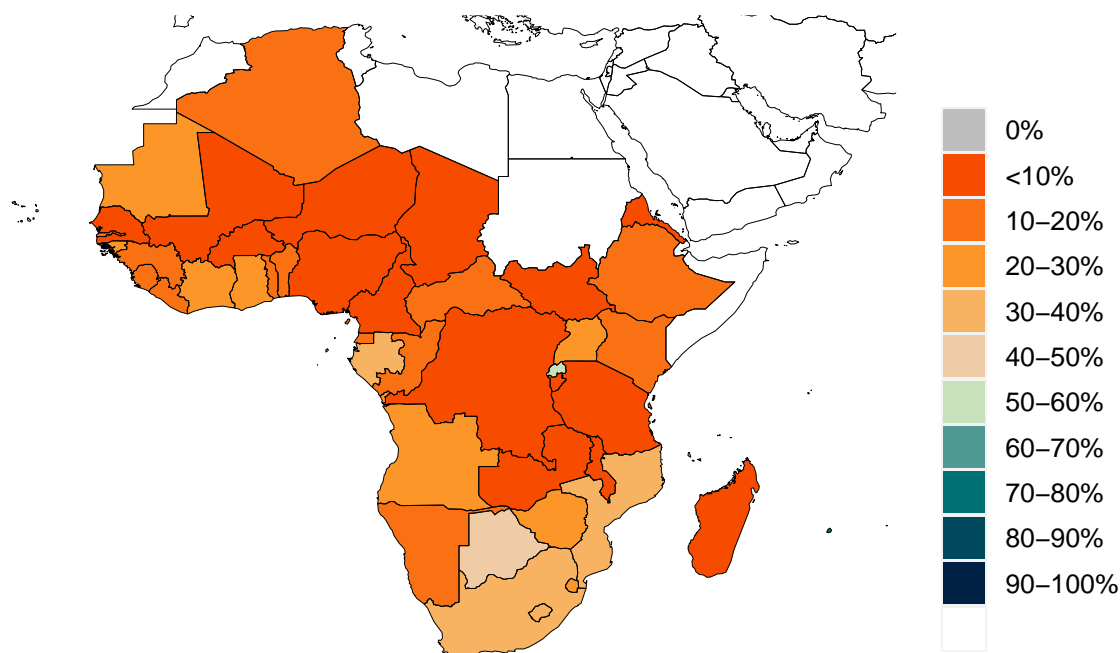


Figure 17.2 Percent of the population fully vaccinated against SARS-CoV-2

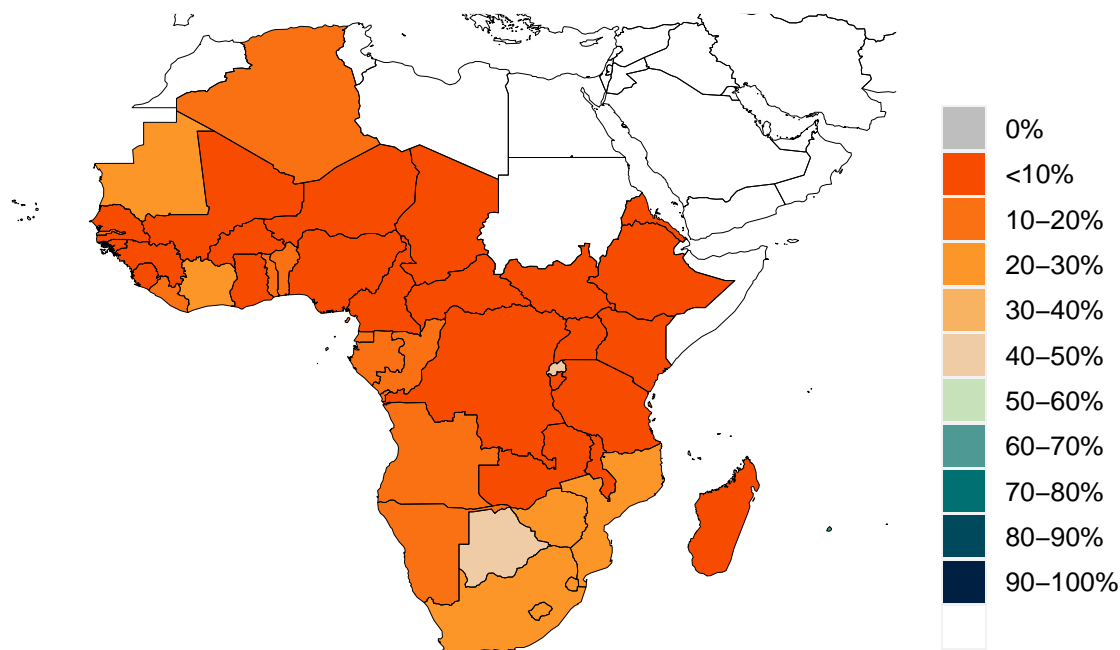


Figure 18.1. Trend in the estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

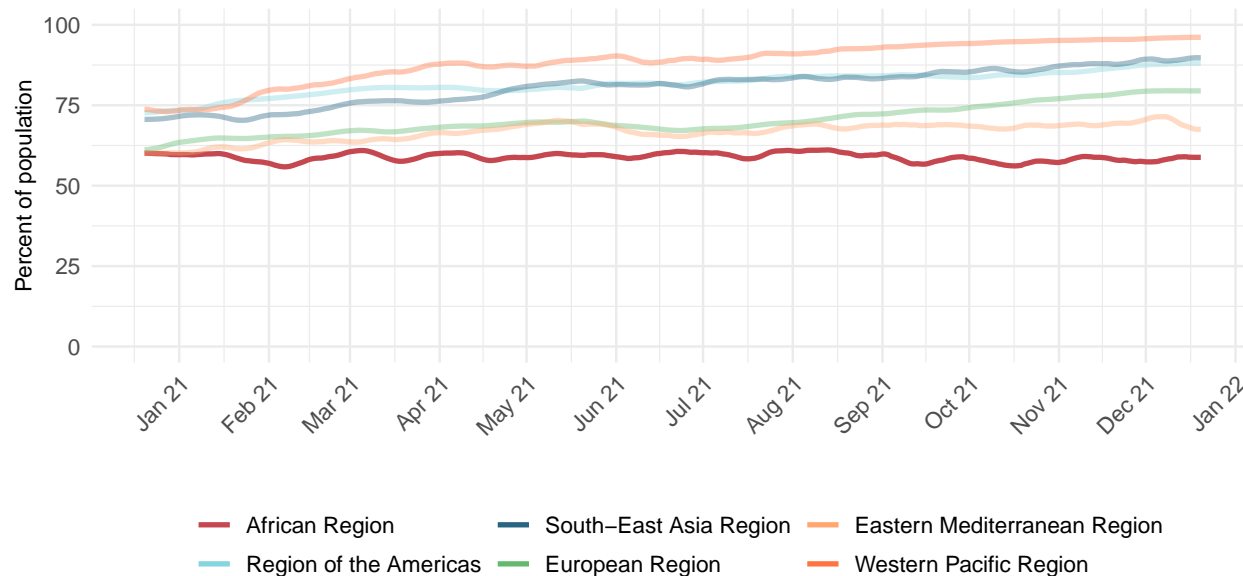


Figure 19.1. Estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

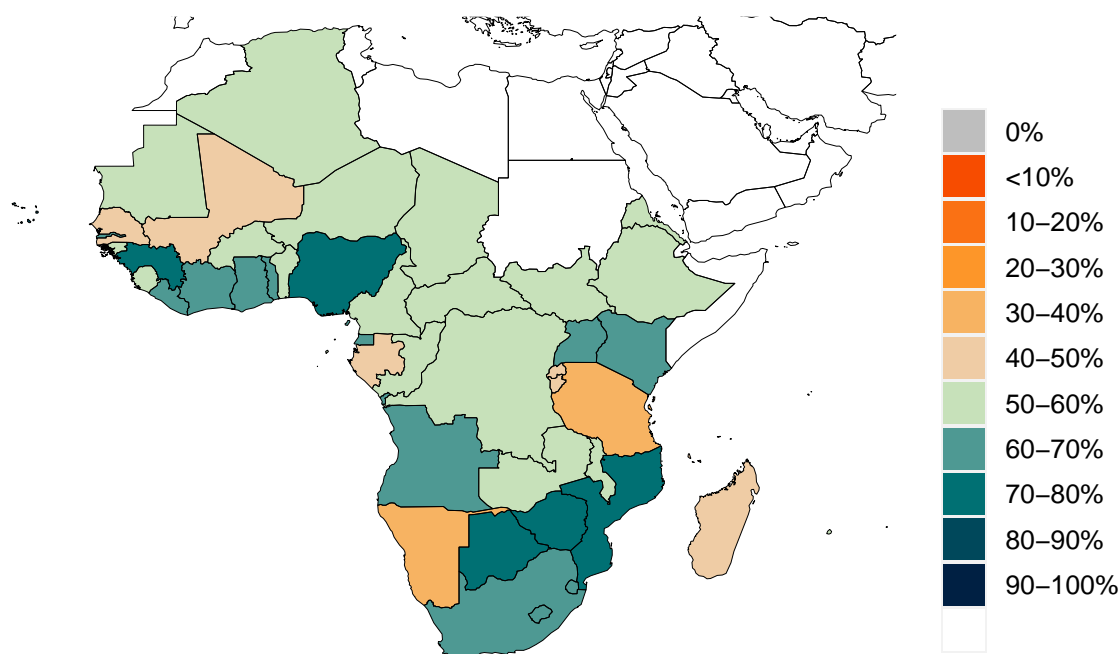
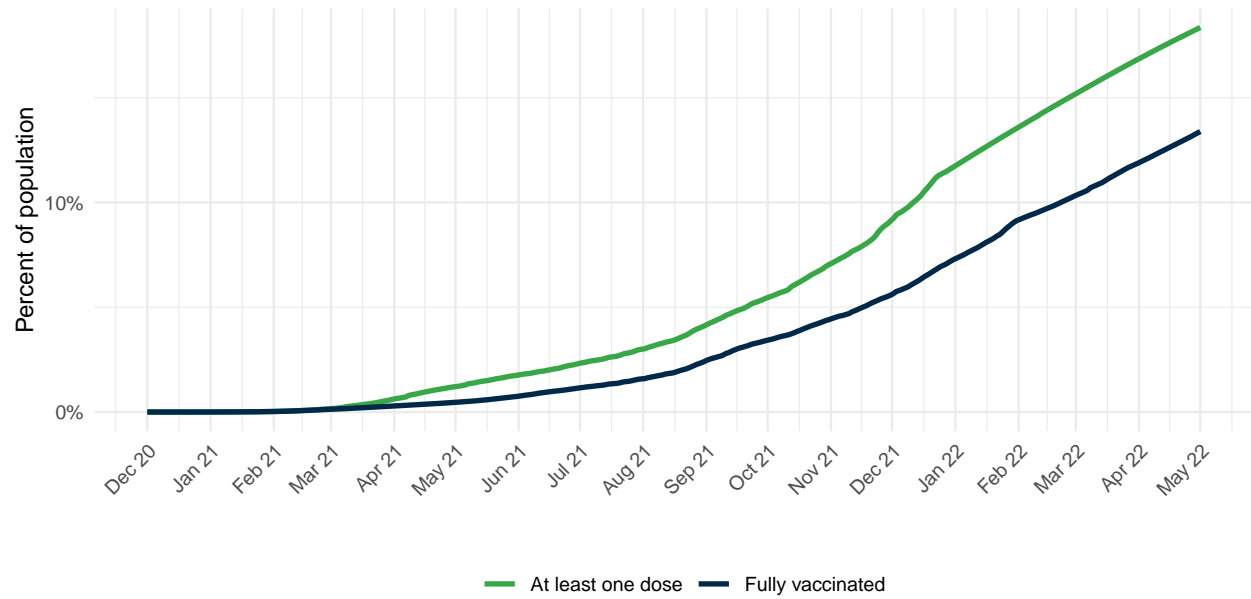


Figure 20.1. Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated



Projections and scenarios

We produce 4 scenarios when projecting COVID-19. The **reference scenario** is our forecast of what we think is most likely to happen:

- Vaccines are distributed at the expected pace. Brand- and variant-specific vaccine efficacy is updated using the latest available information from peer-reviewed publications and other reports.
 - Future mask use is the mean of mask use over the last 7 days.
 - Mobility increases as vaccine coverage increases.
 - Omicron variant spreads according to our flight and local spread model.
-
- 80% of those who have had two doses of vaccine (or one dose for Johnson & Johnson) receive a third dose at 6 months after their second dose.

The **80% mask use scenario** makes all the same assumptions as the reference scenario but assumes all locations reach 80% mask use within 7 days. If a location currently has higher than 80% use, mask use remains at the current level.

The **third dose scenario** is the same as the reference scenario but assumes that 100% of those who have received two doses of vaccine will get a third dose at 6 months.

The **reduced vaccine hesitancy scenario** assumes that those in each location who respond on surveys that they probably will not receive a vaccine are persuaded or mandated to receive a vaccine.

Figure 21.1. Daily COVID-19 infections until May 01, 2022 for 4 scenarios

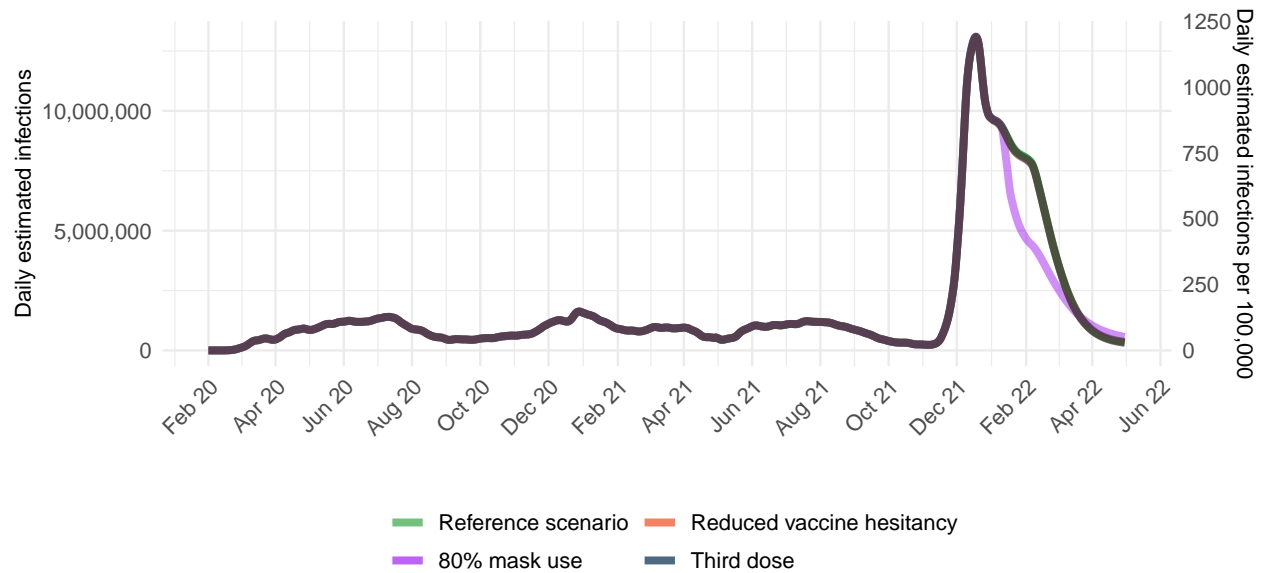


Figure 21.2. Daily COVID-19 reported cases until May 01, 2022 for 4 scenarios

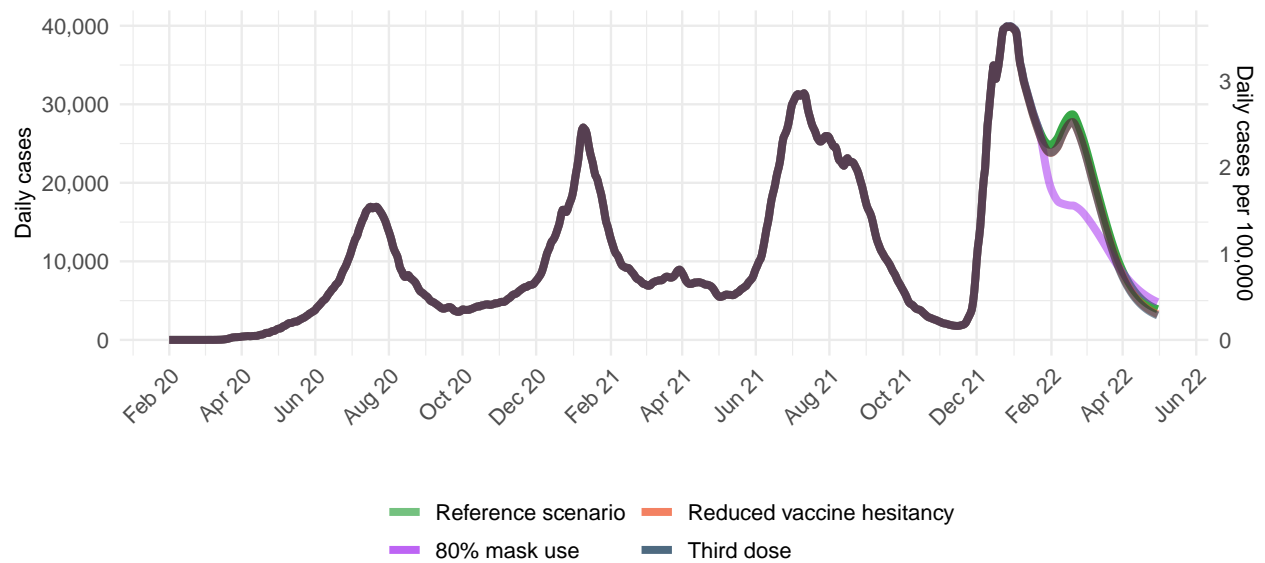


Figure 21.3. Daily COVID-19 hospital census until May 01, 2022 for 4 scenarios

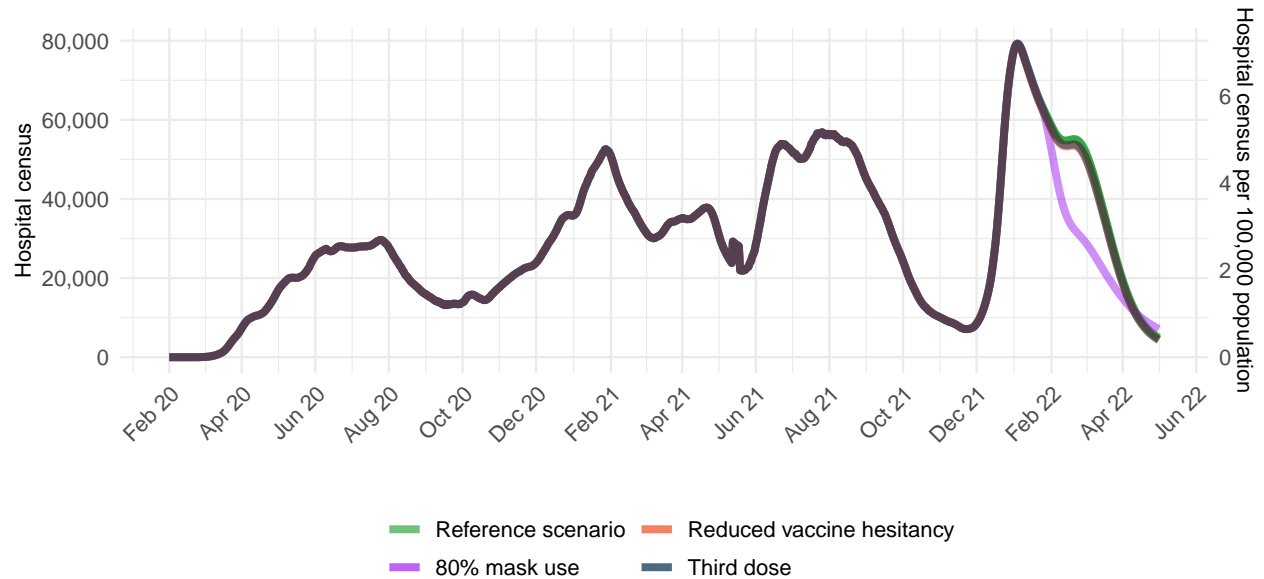


Figure 21.4 Reported daily COVID-19 deaths per 100,000

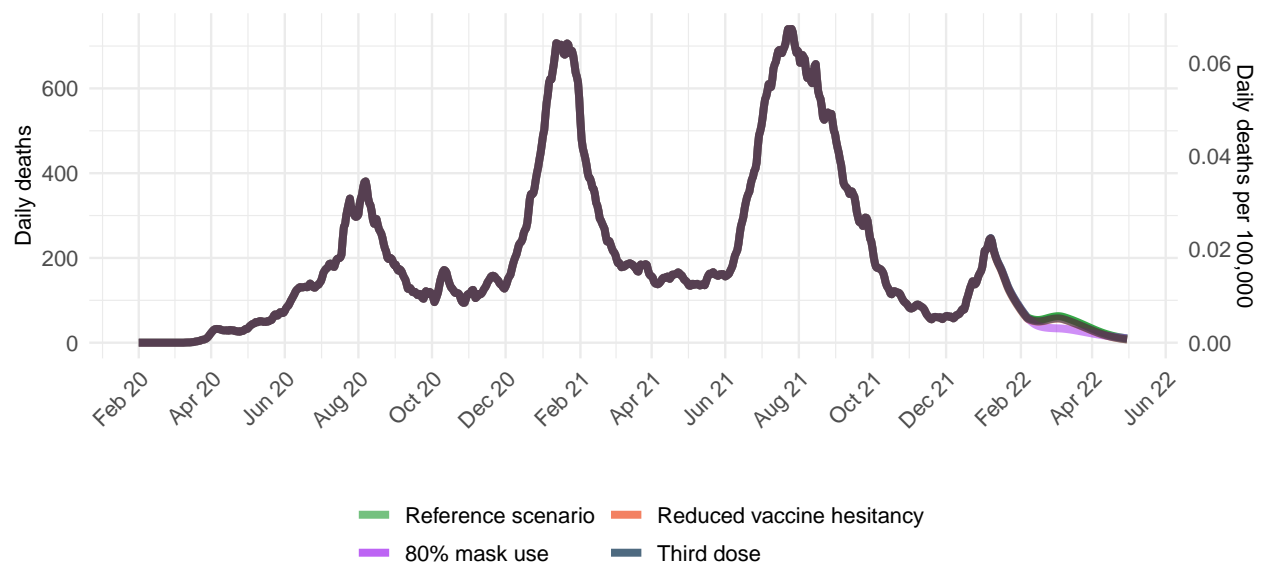


Figure 21.5 Total daily COVID-19 deaths per 100,000

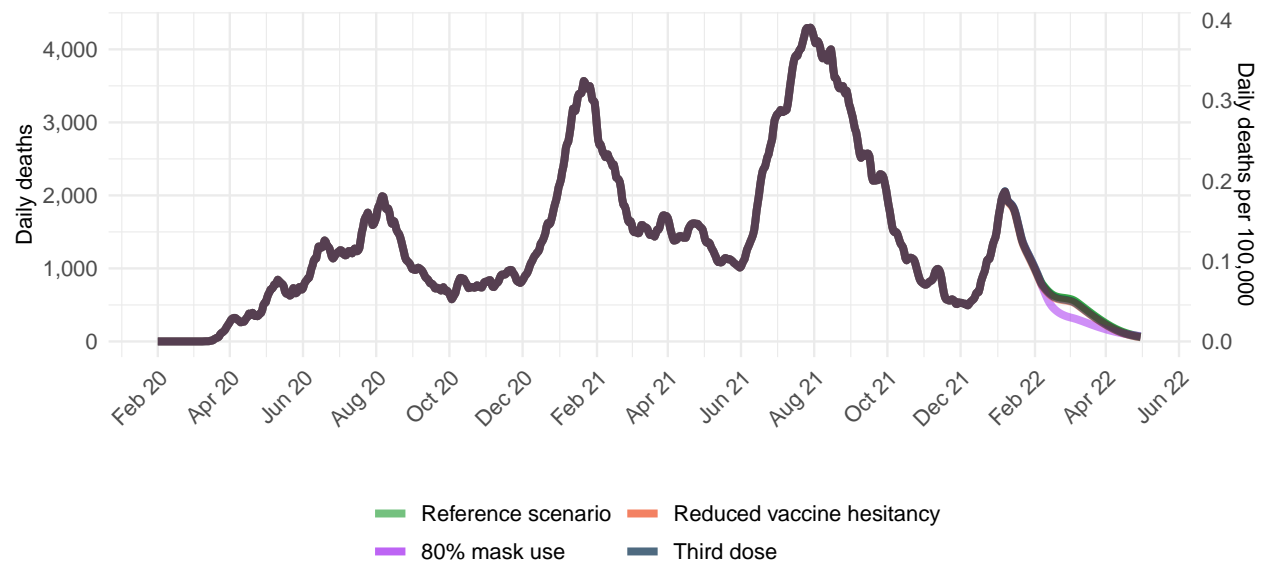


Figure 22.1. Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology ([Delphi](#)) [January 13, 2022], Imperial College London ([Imperial](#)) [December 26, 2021], the SI-KJalpha model from the University of Southern California ([SIKJalpha](#)) [January 13, 2022]. Daily deaths from other modeling groups are smoothed to remove inconsistencies with rounding. Regional values are aggregates from available locations in that region.

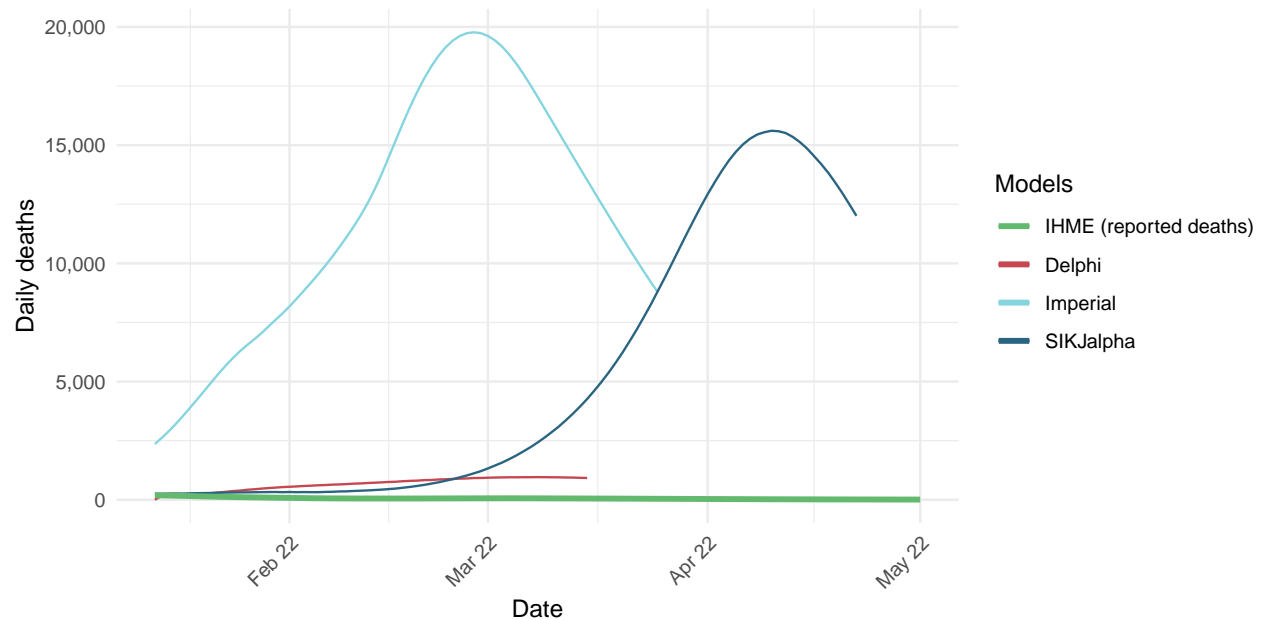


Figure 23.1. The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate stress*, 10-19% is considered *high stress*, and 20% or greater is considered *extreme stress*.

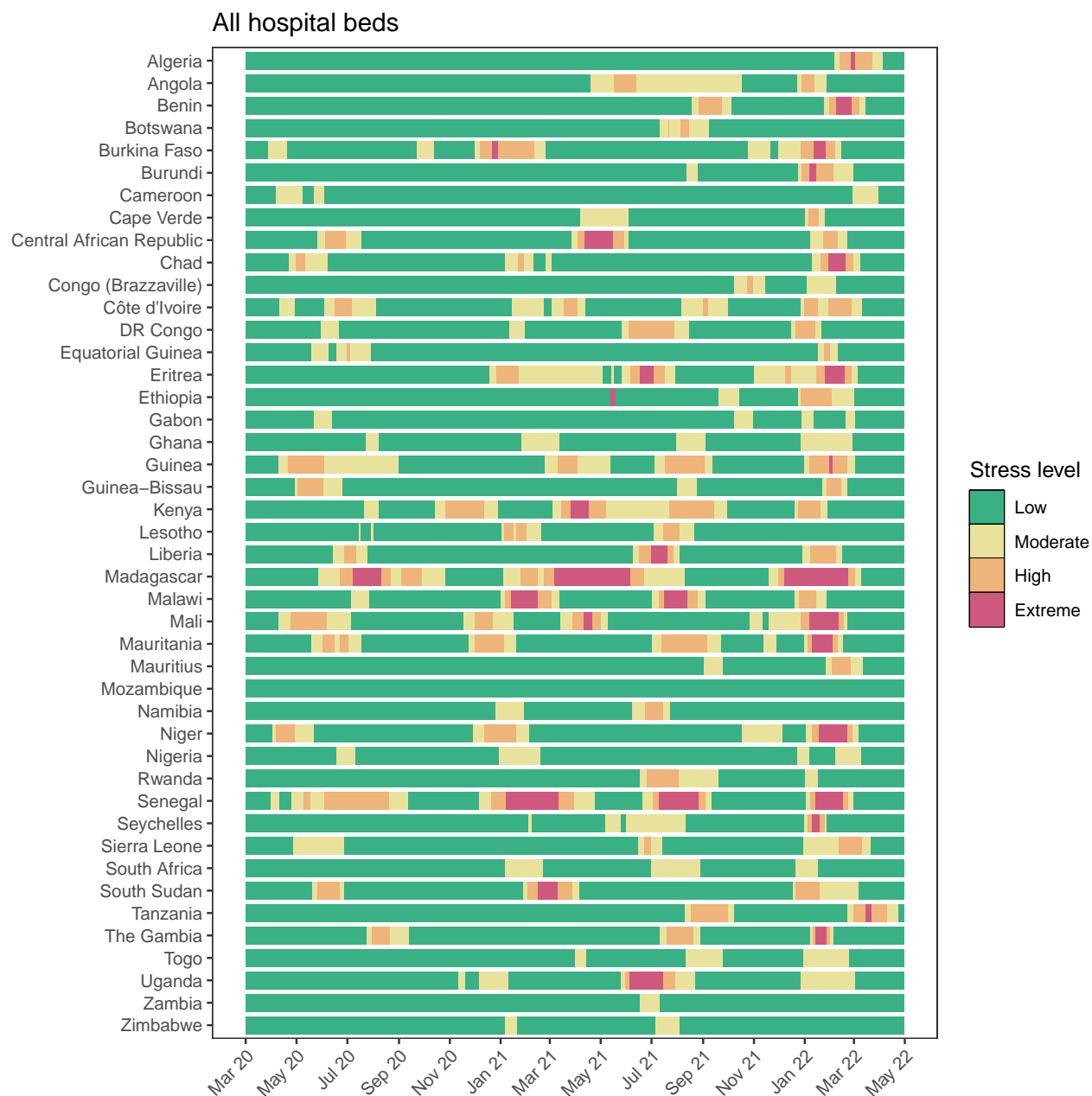


Figure 24.1. The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is considered *moderate stress*, 30-59% is considered *high stress*, and 60% or greater is considered *extreme stress*.



More information

Data sources:

Mask use and vaccine confidence data are from the [The Delphi Group at Carnegie Mellon University and University of Maryland COVID-19 Trends and Impact Surveys](#), in partnership with Facebook. Mask use data are also from [Premise](#), the Kaiser Family Foundation, and the [YouGov COVID-19 Behaviour Tracker](#) survey.

Genetic sequence and metadata are primarily from the GISAID Initiative. Further details available on the COVID-19 model [FAQ page](#).

A note of thanks:

We wish to warmly acknowledge the support of [these](#) and others who have made our COVID-19 estimation efforts possible.

More information:

For all COVID-19 resources at IHME, visit <http://www.healthdata.org/covid>.

To download our most recent results, visit our [Data downloads page](#).

Questions? Requests? Feedback? Please contact us at <https://www.healthdata.org/covid/contact-us>.